Docket No.: E-80044

<u>IN THE UNITED STATES PATENT AND TRADEMARK OFFICE</u>

<u>Before the Board of Patent Appeals and Interferences</u>

Applic. No.	:	10/763,027	Confirmation No.: 9168
Inventor	:	Wolfgang Maus	
Filed	:	January 21, 2004	
Title	:	Honeycomb Body Having a Contraction Limiter	
TC/A.U.	:	1795	
Examiner	:	Matthew J. Merkling	
Customer No.	:	24131	

Hon. Commissioner for Patents
Alexandria, VA 22313-1450

REPLY BRIEF

S i r :

In response to the Examiner's Answer dated June 11, 2010, kindly consider the following remarks:

Remarks:

On page 9 of the Examiner's answer the Examiner alleges that "the ‘contraction limiters’ of Ota do indeed impart a tensile stress to the matrix of Ota. See Fig. 5 of Ota which illustrates a matrix (3) that is suspended in the housing (2) by ‘contraction limiters’ (11a, 11b, 11c). Due to the gravitation pull of the matrix, the contraction limiters (11a, 11b, 11c) will impart a tensile stress ‘to at least one part of said matrix’ in order to keep the matrix suspended in the housing, as depicted in Fig. 5.”

<u>The Examiner's allegation is misplaced and patently wrong.</u>

Specifically, the Examiner's allegation **<u>cannot be</u>** supported by Fig. 5 of Ota. This is because it cannot be ruled out from Fig. 5 of Ota that the discrete cushion members (11) are disposed between the case (2) and the honeycomb (3) in a compressed state such that a pre-compression stress is present in the cushion members, in which case there would be **<u>absolutely no</u>** tensile stress imparted to the honeycomb (3).

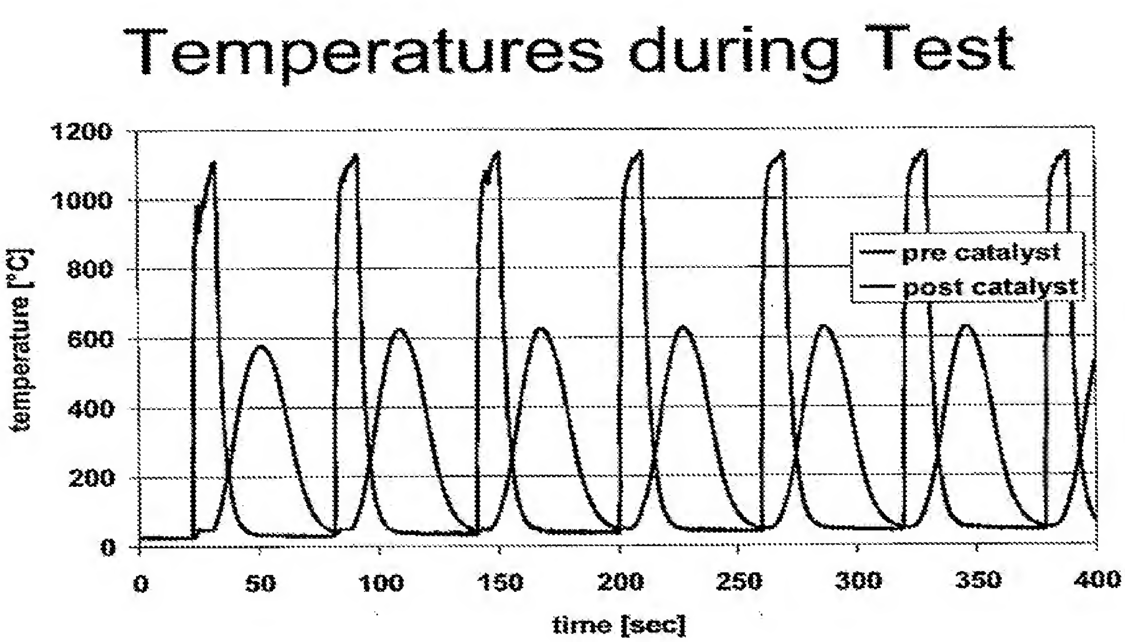
Therefore, since it is entirely possible for the cushion members (11) to be compressed between the case (2) and the honeycomb (3), not even gravitational force would result in a tensile stress being imparted in the

honeycomb (3) by the cushion members (11). Furthermore, it is completely misplaced for the Examiner to resort to relying on gravitational force to impart a tensile stress in a matrix, when it is explicitly recited in claim 1 of the instant application that the tensile stress is imparted as a result of thermal stress (expansion/contraction of the matrix and housing). Accordingly, the Examiner's allegation on page 9 of the Examiner's answer, is misplaced and patently wrong.

On page 9 of the office action the Examiner alleges that "the initial diameter (XX cm) will always remain the initial diameter (XX cm) regardless of how many thermal stresses the matrix goes through." and that "the ‘initial diameter of the matrix’ is still the same value (XX cm) that it was prior to the thermal stresses."

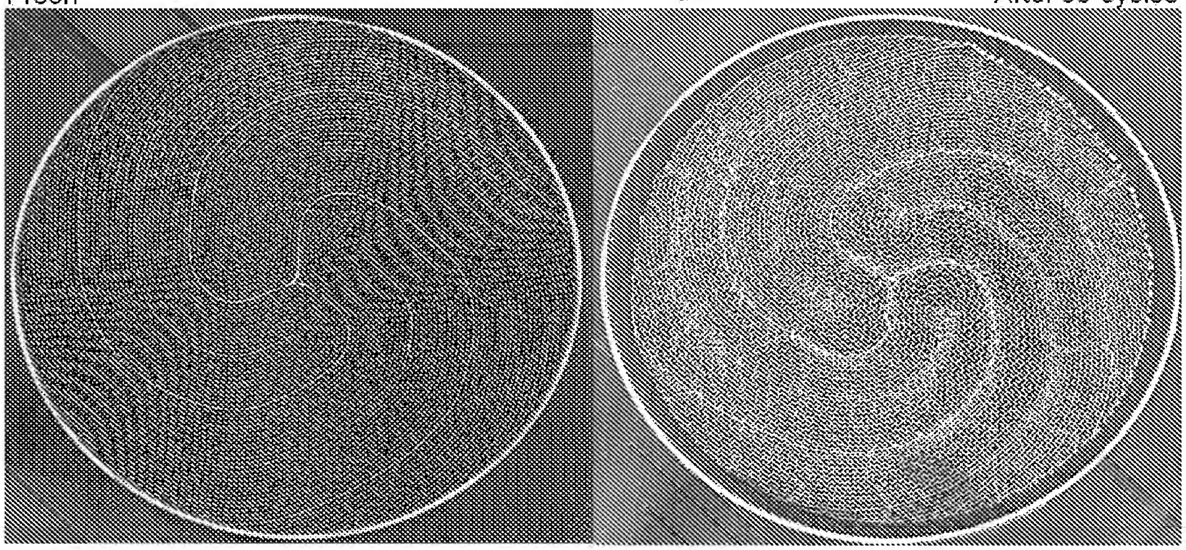
The Examiner's allegation is patently wrong. Specifically, as explicitly disclosed on page 3, lines 4-15 of the specification of the instant application, there is a rather large annular gap between the matrix and the housing, which results from the honeycomb body being subjected to alternating thermal stresses, which causes the honeycomb body to have a barrel-shaped contour. To support this fact below is a graph showing temperatures during repeated thermal stresses and a

photograph of the resulting deformation (contraction) of the matrix without contraction limiters after 30 cycles of alternating thermal. It is noted that appellant did not provide the information prior to the reply brief, because the Examiner's allegation, pertaining to the initial diameter not changing as noted above, was brought forth by the Examiner for the first time in the Examiner's answer. Therefore, the Board is kindly requested to consider the information presented in the reply brief, which serves to corroborate the disclosure in the specification of the instant application.



Pictures of Substrates Fresh and after 30 Cycles

Fresh | After 30 cycles



Ø80; length 50.8 mm; 1200 cpsi; 20 µm foil thickness
Reduce of Diameter: 5.54 mm => average reduction of diameter ca. 7%

State of the art

As is shown, the matrix on the right-hand side explicitly shows that the diameter of the matrix does not return to the initial diameter after repeated thermal cycles. Instead, the diameter of the matrix is reduced by 7%. Therefore, as seen from the above-given remarks, the Examiner's allegation with respect to the initial diameter of a matrix being unchanged after repeated alternating thermal stresses, is patently wrong.

<u>The Examiner has not shown that the cushion members of Ota inherently exert an outward force on the honeycomb matrix:</u>

On page 10 of the Examiner's answer, the Examiner alleges that "to make this more clear, the Examiner points to the Fig. 5 of Ota. The specific contraction limiter that is designated 11b in this figure is inherently exerting and (sic.) upward/outward force on the matrix."

It is noted that the Examiner's allegation is patently wrong. Particularly, as noted above, it entirely possible and most likely the case that the cushion members (11) are in a compressed state when disposed between the case (2) and the honeycomb (3), as shown in Figure 5 of Ota. This would result in a compression force being exerted by the cushion members on the honeycomb (3) of Ota. As such, it is not ***absolutely necessary*** that the cushion members (11) of Ota exert a tensile stress on the honeycomb (3). Therefore, there is no disclosure or suggestion in *Ota* that it is ***absolutely necessary*** that the connecting tube inherently exerts an outwardly directed tensile force on the matrix, as required in claim 1 of the instant application. Accordingly, the Examiner has not met the requirements of MPEP 2112 related to inherency with respect to Ota. Therefore, the Examiner's allegation with respect to inherency in Ota, is patently wrong.

Additionally, as seen from column 4, lines 26-29 of Ota, Ota explicitly discloses a **cushion** member (5) such "that thermal **expansion and contraction** of the honeycomb 3 is **not constrained by the case 2** but is **absorbed** by the cushion member 5 to prevent the honeycomb 3a from being damaged or broken by thermal distortion or **stress**". Therefore, Ota even explicitly teaches away from the above-noted limitation and the inherency alleged by the Examiner.

As seen from the above-given remarks, Ota does not show at least one contraction limiter configured for imparting an outwardly directed tensile stress in at least one part of the matrix for preventing the average initial diameter of the matrix from decreasing by more than 5% after repeated thermal alternating stresses in the range between 600°C and 1050°C, as recited in claim 1 of the instant application.

The following further remarks pertain to the anticipation rejection over Maus.

On page 11 of the Examiner's answer the Examiner alleges that "it is the Examiner's position that one of ordinary skill in the art would recognize the contraction limiters of Maus (11a, 11b, 11c) would

necessarily be exerting an outward force on at least one part of the matrix due to weight of the matrix and the fact that it is suspended in the housing (see Fig. 3). To make this more clear, the Examiner points to the Fig. 3 of Maus. The specific contraction limiter that is designated 11c in this figure is inherently exerting and (sic.) upward/outward force on the matrix in order to support weight of the matrix."

The Examiner's allegation is misplaced and patently wrong. Specifically, the Examiner's allegation **cannot be** supported solely by Fig. 3 of Maus. This is because it cannot be determined from Fig. 3 of Maus if the connecting tube (11) is disposed between the case (1) and the honeycomb (2) in a compressed state such that a pre-compression stress is present in the connecting tube (11), in which case there would be **absolutely no** tensile stress imparted to the honeycomb (2). Therefore, since it is entirely possible for the connecting tube (11) to be compressed between the case (1) and the honeycomb (2) not even the weight of the honeycomb (2) would result in a tensile stress being imparted in the honeycomb (2) by the connecting tube (11). As such, it is not ***absolutely necessary*** that the connecting tube (11) of Maus exert a tensile stress on the honeycomb (2). Therefore, there is no disclosure or suggestion in *Maus* that it is ***absolutely necessary*** that

the connecting tube inherently exerts an outwardly directed tensile force on the matrix, as required in claim 1 of the instant application. Accordingly, the Examiner has not met the requirements of MPEP 2112 related to inherency with respect to Maus. Therefore, the Examiner's allegation with respect to inherency in Maus, is patently wrong.

Furthermore, it is completely misplaced for the Examiner to resort to relying on “weight” to impart a tensile stress in a matrix, when it is explicitly recited in claim 1 of the instant application that the tensile stress is imparted as a result of thermal stress (expansion/contraction of the matrix and housing). Accordingly, the Examiner's allegation on page 10 of the Examiner's answer with respect to Maus, is misplaced and patently wrong.

As seen from the above-given remarks, Maus does not show at least one contraction limiter configured for imparting an outwardly directed tensile stress in at least one part of the matrix for preventing the average initial diameter of the matrix from decreasing by more than 5% after repeated thermal alternating stresses in the range between 600˚C and 1050˚C, as recited in claim 1 of the instant application.

Based on the above-given remarks, the honorable Board is therefore respectfully urged to reverse the final rejection of the Primary Examiner.

Respectfully submitted,

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